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ogists, still widely accepted, the origin of mountains is to be ascribed to the elevation of a molten or semi-molten mass which threw up the rocks along its axis, and crowded the upper strata to the right and left, forming in this way a mountain-chain. But this view is not sustained by observed facts, and Suess adopts the modern view of a general horizontal movement of the mountain system as a whole. The conclusions of Suess agree to a very considerable extent with those of Professor Dana in his discussion of mountain-making in general.

In the Alps the exertion of this horizontal force was essentially influenced by resistance from four different sources: (1) from the presence of foreign masses of older rocks; (2) from the folding mass itself; (3) from the occasional introduction of older volcanic rocks, as granite and porphyry, in the moving mass; (4) finally, it appears that single mountain masses, like the Adamello or the red porphyry, near Botzen, have exerted an essential influence on the development of the surrounding mountain region.

If we look at the subject more broadly, however, and pass out of Europe to America, and then further study the great mountain-chains of Asia, we arrive at this grand conclusion: throughout, mountain-masses and mountain-movements are *one-sided*, and the direction of the movement is in general northwest, north, or northeast, in North America and Europe, but southerly or southeasterly in Central Asia. There is no regular geometrical arrangement in mountain-chains.

In conclusion, it may be remarked that mountain-making as a whole can be regarded as a stiffening of the earth's surface, which process has been determined by the distribution of certain older rigid masses. These may be made up of mountain lines pushed up together and crossing each other, as in Bohemia, or they may consist of widely extended surfaces whose strata, even the oldest, have retained their horizontal position, as in the great Russian plain. These primitive masses conform to no geometrical law, either in outline or in distribution, though they have determined the form and course of the folds which contraction has produced in the more pliant portions of the earth's surface between them.

GEOGRAPHY AND EXPLORATION.

EXPLORATION OF THE UPPER MADEIRA PLATE. — Professor James Orton, of Vassar College, is preparing for a third expedition to South America. He purposes to explore the unknown parts of the Upper Madeira Plate, the Rio Beni in particular. This magnificent river, the largest tributary to the Madeira, has never been explored; its course is as much a geographical problem as the source of the Nile. The mysterious Madre de Dios is supposed to be an affluent, but it remains to be proved. Lieutenant Gibbon was charged by our government to settle the question, but he failed in the attempt. Professor Orton intends to examine this river mainly in the interest of geographical science; but its natural history and commercial resources will receive all possible attention. To archæologists this must be an intensely interesting field, as the Beni region was the treasure-land of the Incas; while to zoölogists it is a paradise of new forms. Said Dr. Sclater in his address before the British Association, "There is no part of South America which I would sooner suggest as a promising locality for the zoölogical collector."

THE ALEUTIAN ISLANDS. — We have received copies of a Report of Geographical and Hydrographical Explorations on the Coast of Alaska, by W. H. Dall, assistant in the Coast Survey. It is accompanied by a map of these islands on an extended scale, and contains many corrections of previous maps.

MOUNT ST. ELIAS. — In an elaborate account of Mount St. Elias printed in the forthcoming report of the Coast Survey, Mr. Dall publishes a map of the neighboring Alaskan coast, with sketches of Mount St. Elias and Mount Fairweather. The former he estimates to be 19,500 feet in height, while Mount Cook, which is sometimes mistaken for it, is 16,000 feet high. Mr. Dall thinks that Mount St. Elias is not an extinct volcano, through the great amphitheatre on the southeast flank may possibly be the crater of an extinct volcano; still this is doubtful. "Preëminent in grandeur," says Mr. Dall, "is the southern face of this mountain. With few and but insignificant foot-hills, it rises abruptly from the valley; and at about five thousand feet above its base, the entire side of the mountain is formed of an immense rock-face, inclined at an angle of 45° to the sea, rising eight or ten thousand feet without a break in its continuity. It terminates somewhat irregularly above, and the upper contours of the peak remind one of the granite peaks of the Californian Sierras. The apex is pyramidal, sharp, and clearly cut, leading to the inference that it is precipitous on the invisible northern side." There are no glaciers on the flanks of this mountain, but, owing to the topographical features of the peak, great snowfields; while there are four glaciers on Mount Fairweather, and at the head of the Bay of Yakutat, which lies between the two mountains, "glaciers come down to the sea, and send their floating fragments, laden with earth and stones, out into the sea." These glaciers have apparently always been local, as "the character of the topography is such that it is inconceivable that a continuous glacier, moving in any direction, could have ever covered the western slope of these mountains." The statement of a Russian sailor that Mount St. Elias sent forth flames and ashes is regarded as untrustworthy.

MICROSCOPY.[1]

MICROSCOPY AT THE AMERICAN ASSOCIATION. — At the Detroit meeting of the American Association for the Advancement of Science, last August, the microscopists who were in attendance decided to organize permanently a subsection or club, connected with the association.

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[1] This department is conducted by DR. R. H. WARD, Troy, N. Y.